Journal of Nuclear Materials 173 (1990) 321–323
North-Holland



# Author index

Abdou, M.A., see Federici 173 (1990) 185
Abdou, M.A., see Federici 173 (1990) 214
Andrew, J.F., see Sandenaw 173 (1990) 59
Ashida, K., see Watanabe 173 (1990) 294

Bagger, C., see Walker 173 (1990) 14
Barry, P.E., J.S. Bowers, R.G. Garza, P.C. Souers, J.S. Cantrell and T. Beiter, Reaction of LiH and $BeH_2$ 173 (1990) 142
Bates, J.F., see Foster 173 (1990) 164
Beiter, T., see Barry 173 (1990) 142
Bloch, J., see Swissa 173 (1990) 87
Bogaerts, W.F., see Zheng 173 (1990) 101
Borrelly, R. and P. Merle, Study by electron diffraction of precipitation in low iron content Zr–Fe alloys (Letter to the Editors) 173 (1990) 105
Bowers, J.S., see Barry 173 (1990) 142
Burke, M.G., see Foster 173 (1990) 164
Buzhinskij, O.I., I.V. Opimach, A.V. Kabishev, V.V. Lopatin and Y.P. Surov, Application of pyrolytic boron nitride in fusion devices 173 (1990) 179

Cantrell, J.S., see Barry 173 (1990) 142
Christodoulou, N., A. Salinas-Rodriguez and S. Ves, Anisotropy of the shear modulus in hcp-zirconium single crystals (Letter to the Editors) 173 (1990) 98
Chung, S.-U., see Hong 173 (1990) 7
Croessmann, C.D., see Haasz 173 (1990) 108

Davis, J.W., see Haasz 173 (1990) 108
Dougherty, J., see Foster 173 (1990) 164
Doyle, B.L., see Haasz 173 (1990) 108

Emig, J.A., S.R. Mayhugh, F. Garcia and P.C. Souers, Swelling of tritiated lithium hydride over the first 150 days 173 (1990) 113

Federici, G., A.R. Raffray and M.A. Abdou, MISTRAL: A comprehensive model for tritium transport in lithium-base ceramics. Part I: Theory and description of model capabilities 173 (1990) 185
Federici, G., A.R. Raffray and M.A. Abdou, MISTRAL: A comprehensive model for tritium transport in lithium-base ceramics. Part II: Comparison of model predictions with experimental results 173 (1990) 214
Folkers, C.L., see Souers 173 (1990) 159
Foster, J.P., J. Dougherty, M.G. Burke, J.F. Bates and S. Worcester, Influence of final recrystallization heat treatment on Zircaloy-4 strip corrosion 173 (1990) 164

Garcia, F., see Emig 173 (1990) 113
Garza, R.G., see Barry 173 (1990) 142

Haasz, A.A., J.W. Davis, C.D. Croessmann, B.L. Doyle, R.E. Nygren, D.S. Walsh, J.G. Watkins and J.B. Whitley, Radiation-enhanced sublimation experiments using the Sandia high-heat-flux test facility (Letter to the Editors) 173 (1990) 108
Hall, R.O.A., D.G. Martin and M.J. Mortimer, The thermal conductivity of $UO_2$ sphere-pac beds 173 (1990) 130
Hanks, W., see Mazey 173 (1990) 34
Heidinger, R., Dielectric loss of alumina between 95 and 330 K at ECRH frequencies (Letter to the Editors) 173 (1990) 243
Herzig, C., see Vieregge 173 (1990) 118
Hirabayashi, T., S. Poosittisak, Y. Sun and M. Saeki, Tritium sorption and chemical and topographical properties of a stainless steel surface modified with chromium 173 (1990) 26
Hirai, M., Thermal diffusivity of $UO_2$–$Gd_2O_3$ pellets 173 (1990) 247
Hong, M.-H., S.-I. Pyun, S.-U. Chung and J.-S. Kim, A fractographic study of stress corrosion cracking of Zircaloy-4 in a methanol/HCl solution 173 (1990) 7

Iyer, R.M., see Venkataramani 173 (1990) 255

Kabishev, A.V., see Buzhinskij 173 (1990) 179
Kapinos, V.G., Y.N. Osetskii and P.A. Platonov, The mechanism of nucleation of vacancy loops with Burgers vectors ⟨100⟩ in bcc metals 173 (1990) 229
Kehrel, A., K.P. Lieb, N. Scapellato and M. Uhrmacher, Diffusion of implanted sodium in iron and AISI 316 Ti stainless steel 173 (1990) 284
Kim, J.-S., see Hong 173 (1990) 7
Kopp, D. and H. Münzel, Release of volatile carbon-14 containing products from Zircaloy 173 (1990) 1

Le Calvar, M. and M. Lenglet, Etude, par spectroscopies optiques de reflexion dans l'ultraviolet, visible, proche infrarouge et infrarouge, par spectroscopie XPS de l'oxydation d'un alliage Ni–20Cr 173 (1990) 71
Lenglet, M., see Le Calvar 173 (1990) 71
Lieb, K.P., see Kehrel 173 (1990) 284
Lindahl, R.O., see Souers 173 (1990) 159
Lopatin, V.V., see Buzhinskij 173 (1990) 179
Lurcook, D.K., see Mazey 173 (1990) 34

Martin, D.G., see Hall 173 (1990) 130
Matsui, T., see Stølen 173 (1990) 48
Mayhugh, S.R., see Emig 173 (1990) 113
Mazey, D.J., W. Hanks and D.K. Lurcook, Radiation damage studies of ion-irradiated low-activation developmental martensitic steel alloys for fusion applications 173 (1990) 34
McCreary, T., see Souers 173 (1990) 159
Meneley, D.A., see Shalabi 173 (1990) 313
Merle, P., see Borrelly 173 (1990) 105
Mintz, M.H., see Swissa 173 (1990) 87
Mogensen, M., see Walker 173 (1990) 14
Mortimer, M.J., see Hall 173 (1990) 130
Münzel, H., see Kopp 173 (1990) 1

Naito, K., see Stølen 173 (1990) 48
Nygren, R.E., see Haasz 173 (1990) 108

Olander, D.R., see Osaisai 173 (1990) 149
Opimach, I.V., see Buzhinskij 173 (1990) 179
Osaisai, F.E., S.G. Prussin and D.R. Olander, Concentration profiles of neutron-induced radioactivities in $UO_2$ fuel specimens 173 (1990) 149
Osetskii, Y.N., see Kapinos 173 (1990) 229

Peddicord, K.L., see Senor 173 (1990) 261
Peddicord, K.L., see Senor 173 (1990) 274
Piotrkowski, R., G. Vigna and R. Versaci, Precipitation and identification of carbides in a Zr–2.5 wt% Nb alloy 173 (1990) 78
Platonov, P.A., see Kapinos 173 (1990) 229
Poosittisak, S., see Hirabayashi 173 (1990) 26
Prussin, S.G., see Osaisai 173 (1990) 149
Pyun, S.-I., see Hong 173 (1990) 7

Raffray, A.R., see Federici 173 (1990) 185
Raffray, A.R., see Federici 173 (1990) 214
Rohde, M. and B. Schulz, The effect of the exposure to different irradiation sources on the thermal conductivity of $Al_2O_3$ 173 (1990) 289

Saeki, M., see Hirabayashi 173 (1990) 26
Sakairi, H., see Uedono 173 (1990) 307
Salinas-Rodriguez, A., see Christodoulou 173 (1990) 98
Sandenaw, T.A. and J.F. Andrew, Multiple martensitic transformations in plutonium metal and a suggested similarity in electronic behavior of plutonium metal phases and d-electron transition element alloys 173 (1990) 59
Scapellato, N., see Kehrel 173 (1990) 284
Schulz, B., see Rohde 173 (1990) 289
Senor, D.J., J.K. Thomas and K.L. Peddicord, Thermophysical property correlations for the niobium–1% zirconium alloy 173 (1990) 261
Senor, D.J., J.K. Thomas and K.L. Peddicord, Transport property correlations for the niobium–1% zirconium alloy 173 (1990) 274
Shalabi, A.F. and D.A. Meneley, Initiation of delayed hydride cracking in zirconium–2.5 wt% niobium 173 (1990) 313
Shamir, N., see Swissa 173 (1990) 87
Snider, G.D., see Souers 173 (1990) 159
Sonobe, M., see Watanabe 173 (1990) 294
Souers, P.C., C.L. Folkers, T. McCreary, R.O. Lindahl, G.D. Snider, F. Vanderhoofven and R.T. Tsugawa, Swelling of tritiated lithium hydride powder 173 (1990) 159
Souers, P.C., see Barry 173 (1990) 142
Souers, P.C., see Emig 173 (1990) 113
Stølen, S., T. Matsui and K. Naito, Mass spectrometric vaporization study on palladium–zirconium alloys 173 (1990) 48
Sun, Y., see Hirabayashi 173 (1990) 26
Surov, Y.P., see Buzhinskij 173 (1990) 179
Swissa, E., N. Shamir, M.H. Mintz and J. Bloch, Heat-induced redistribution of surface oxide in uranium 173 (1990) 87

Tanigawa, S., see Uedono 173 (1990) 307
Thomas, J.K., see Senor 173 (1990) 261
Thomas, J.K., see Senor 173 (1990) 274
Tsugawa, R.T., see Souers 173 (1990) 159

Uedono, A., S. Tanigawa and H. Sakairi, Study of near surface defects in He-implanted stainless steels by monoenergetic positron beam 173 (1990) 307
Uhrmacher, M., see Kehrel 173 (1990) 284

Vanderhoofven, F., see Souers 173 (1990) 159
Venkataramani, B. and R.M. Iyer, A novel surface chemical treatment to improve the quality of sintered $UO_2$ pellets 173 (1990) 255
Versaci, R., see Piotrkowski 173 (1990) 78
Ves, S., see Christodoulou 173 (1990) 98
Vieregge, K. and C. Herzig, Grain boundary diffusion in $\alpha$-zirconium. Part I: Self-diffusion 173 (1990) 118
Vigna, G., see Piotrkowski 173 (1990) 78

Walker, C.T., C. Bagger and M. Mogensen, Migration of fission product barium in $UO_2$ fuel under transient conditions 173 (1990) 14

Walsh, D.S., see Haasz 173 (1990) 108
Watanabe, K., K. Ashida and M. Sonobe, The compensation effect on diffusion constants of hydrogen in metals 173 (1990) 294
Watkins, J.G., see Haasz 173 (1990) 108
Whitley, J.B., see Haasz 173 (1990) 108
Worcester, S., see Foster 173 (1990) 164
Zheng, J.H. and W.F. Bogaerts, Caustic stress corrosion cracking of stainless steel 316L in concentrated lithium hydroxide (Letter to the Editors) 173 (1990) 101

Journal of Nuclear Materials 173 (1990) 325–329
North-Holland



# Subject index

**Aluminium, Aluminium Alloys and Compounds**
Dielectric loss of alumina between 95 and 330 K at ECRH frequencies (Letter to the Editors), R. Heidinger 173 (1990) 243
The effect of the exposure to different irradiation sources on the thermal conductivity of $Al_2O_3$, M. Rohde and B. Schulz 173 (1990) 289

**Analytical Instruments and Methods**
Study of near surface defects in He-implanted stainless steels by monoenergetic positron beam, A. Uedono, S. Tanigawa and H. Sakairi 173 (1990) 307

**Beryllium, Beryllium Alloys and Compounds**
Reaction of LiH and $BeH_2$, P.E. Barry, J.S. Bowers, R.G. Garza, P.C. Souers, J.S. Cantrell and T. Beiter 173 (1990) 142

**Blanket Materials**
Swelling of tritiated lithium hydride over the first 150 days, J.A. Emig, S.R. Mayhugh, F. Garcia and P.C. Souers 173 (1990) 113
Caustic stress corrosion cracking of stainless steel 316L in concentrated lithium hydroxide (Letter to the Editors), J.H. Zheng and W.F. Bogaerts 173 (1990) 101
Reaction of LiH and $BeH_2$, P.E. Barry, J.S. Bowers, R.G. Garza, P.C. Souers, J.S. Cantrell and T. Beiter 173 (1990) 142
Swelling of tritiated lithium hydride powder, P.C. Souers, C.L. Folkers, T. McCreary, R.O. Lindahl, G.D. Snider, F. Vanderhoofven and R.T. Tsugawa 173 (1990) 159
MISTRAL: A comprehensive model for tritium transport in lithium-base ceramics. Part I: Theory and description of model capabilities , G. Federici, A.R. Raffray and M.A. Abdou 173 (1990) 185
MISTRAL: A comprehensive model for tritium transport in lithium-base ceramics. Part II: Comparison of model predictions with experimental results , G. Federici, A.R. Raffray and M.A. Abdou 173 (1990) 214

**Ceramics** *("Various", i.e. not listed elsewhere by name)*
Application of pyrolytic boron nitride in fusion devices, O.I. Buzhinskij, I.V. Opimach, A.V. Kabishev, V.V. Lopatin and Y.P. Surov 173 (1990) 179
MISTRAL: A comprehensive model for tritium transport in lithium-base ceramics. Part I: Theory and description of model capabilities , G. Federici, A.R. Raffray and M.A. Abdou 173 (1990) 185
MISTRAL: A comprehensive model for tritium transport in lithium-base ceramics. Part II: Comparison of model predictions with experimental results , G. Federici, A.R. Raffray and M.A. Abdou 173 (1990) 214

**Cladding Materials**
Release of volatile carbon-14 containing products from Zircaloy, D. Kopp and H. Münzel 173 (1990) 1
Grain boundary diffusion in α-zirconium. Part i: Self-diffusion, K. Vieregge and C. Herzig 173 (1990) 118

**Coatings** *(and Coated Particles)*
Tritium sorption and chemical and topographical properties of a stainless steel surface modified with chromium, T. Hirabayashi, S. Poosittisak, Y. Sun and M. Saeki 173 (1990) 26
Heat-induced redistribution of surface oxide in uranium, E. Swissa, N. Shamir, M.H. Mintz and J. Bloch 173 (1990) 87

**Compatibility and Corrosion**
A fractographic study of stress corrosion cracking of Zircaloy-4 in a methanol/HCl solution, M.-H. Hong, S.-I. Pyun, S.-U. Chung and J.-S. Kim 173 (1990) 7
Caustic stress corrosion cracking of stainless steel 316L in concentrated lithium hydroxide (Letter to the Editors), J.H. Zheng and W.F. Bogaerts 173 (1990) 101
Influence of final recrystallization heat treatment on Zircaloy-4 strip corrosion, J.P. Foster, J. Dougherty, M.G. Burke, J.F. Bates and S. Worcester 173 (1990) 164

**Computer Calculations, including Modelling**
The mechanism of nucleation of vacancy loops with Burgers vectors ⟨100⟩ in bcc

metals, V.G. Kapinos, Y.N. Osetskii and P.A. Platonov 173 (1990) 229

**Constitution**
Precipitation and identification of carbides in a Zr–2.5 wt% Nb alloy, R. Piotrkowski, G. Vigna and R. Versaci 173 (1990) 78

**Defects and Defect Structures**
Study of near surface defects in He-implanted stainless steels by monoenergetic positron beam, A. Uedono, S. Tanigawa and H. Sakairi 173 (1990) 307

**Diffusion** *(incl. Thermodiffusion)*
Migration of fission product barium in $UO_2$ fuel under transient conditions, C.T. Walker, C. Bagger and M. Mogensen 173 (1990) 14
Precipitation and identification of carbides in a Zr–2.5 wt% Nb alloy, R. Piotrkowski, G. Vigna and R. Versaci 173 (1990) 78
Diffusion of implanted sodium in iron and AISI 316 Ti stainless steel, A. Kehrel, K.P. Lieb, N. Scapellato and M. Uhrmacher 173 (1990) 284
The compensation effect on diffusion constants of hydrogen in metals, K. Watanabe, K. Ashida and M. Sonobe 173 (1990) 294

**Electrical Properties**
Transport property correlations for the niobium–1% zirconium alloy, D.J. Senor, J.K. Thomas and K.L. Peddicord 173 (1990) 274

**Electron Microscopy and Electron Probe Microanalysis**
Study by electron diffraction of precipitation in low iron content Zr–Fe alloys (Letter to the Editors), R. Borrelly and P. Merle 173 (1990) 105

**Experimental Techniques**
Etude, par spectroscopies optiques de reflexion dans l'ultraviolet, visible, proche infrarouge et infrarouge, par spectroscopie XPS de l'oxydation d'un alliage Ni–20Cr , M. Le Calvar and M. Lenglet 173 (1990) 71
Study of near surface defects in He-implanted stainless steels by monoenergetic positron beam, A. Uedono, S. Tanigawa and H. Sakairi 173 (1990) 307

**Fast Reactors**
Diffusion of implanted sodium in iron and AISI 316 Ti stainless steel, A. Kehrel, K.P. Lieb, N. Scapellato and M. Uhrmacher 173 (1990) 284

**Fission Products**
Migration of fission product barium in $UO_2$ fuel under transient conditions, C.T. Walker, C. Bagger and M. Mogensen 173 (1990) 14
Mass spectrometric vaporization study on palladium–zirconium alloys, S. Stølen, T. Matsui and K. Naito 173 (1990) 48

**Fracture and Fracture Toughness**
Initiation of delayed hydride cracking in zirconium–2.5 wt% niobium, A.F. Shalabi and D.A. Meneley 173 (1990) 313

**Fuels and Fuel Elements**
Migration of fission product barium in $UO_2$ fuel under transient conditions, C.T. Walker, C. Bagger and M. Mogensen 173 (1990) 14
Mass spectrometric vaporization study on palladium–zirconium alloys, S. Stølen, T. Matsui and K. Naito 173 (1990) 48
Concentration profiles of neutron-induced radioactivities in $UO_2$ fuel specimens, F.E. Osaisai, S.G. Prussin and D.R. Olander 173 (1990) 149

**Fusion Reactors**
Radiation-enhanced sublimation experiments using the Sandia high-heat-flux test facility (Letter to the Editors), A.A. Haasz, J.W. Davis, C.D. Croessmann, B.L. Doyle, R.E. Nygren, D.S. Walsh, J.G. Watkins and J.B. Whitley 173 (1990) 108
Application of pyrolytic boron nitride in fusion devices, O.I. Buzhinskij, I.V. Opimach, A.V. Kabishev, V.V. Lopatin and Y.P. Surov 173 (1990) 179
Dielectric loss of alumina between 95 and 330 K at ECRH frequencies (Letter to the Editors), R. Heidinger 173 (1990) 243
The effect of the exposure to different irradiation sources on the thermal conductivity of $Al_2O_3$, M. Rohde and B. Schulz 173 (1990) 289

**Gases** *(excl. Tritium)* **in Metals, Alloys and Ceramics**
Heat-induced redistribution of surface oxide in uranium, E. Swissa, N. Shamir, M.H. Mintz and J. Bloch 173 (1990) 87

**Graphite and Carbon**
Release of volatile carbon-14 containing products from Zircaloy, D. Kopp and H. Münzel 173 (1990) 1

**Helium**
Study of near surface defects in He-implanted stainless steels by monoenergetic positron beam, A. Uedono, S. Tanigawa and H. Sakairi 173 (1990) 307

**Hydrogen and Hydrides** *(incl. Deuterium and Deuterides)*
Reaction of LiH and $BeH_2$, P.E. Barry, J.S. Bowers, R.G. Garza, P.C. Souers, J.S. Cantrell and T. Beiter 173 (1990) 142
Swelling of tritiated lithium hydride powder, P.C. Souers, C.L. Folkers, T. McCreary, R.O. Lindahl, G.D. Snider, F. Vanderhoofven and R.T. Tsugawa 173 (1990) 159
The compensation effect on diffusion constants of hydrogen in metals, K. Watanabe, K. Ashida and M. Sonobe 173 (1990) 294
Initiation of delayed hydride cracking in zirconium–2.5 wt% niobium, A.F. Shalabi and D.A. Meneley 173 (1990) 313

**Impurities**
Study by electron diffraction of precipitation in low iron content Zr–Fe alloys (Letter to the Editors), R. Borrelly and P. Merle 173 (1990) 105

**Iron and Iron Alloys** *(excl. Steels)*
Radiation-enhanced sublimation experiments using the Sandia high-heat-flux test facility (Letter to the Editors), A.A. Haasz, J.W. Davis, C.D. Croessmann, B.L. Doyle, R.E. Nygren, D.S. Walsh, J.G. Watkins and J.B. Whitley 173 (1990) 108
Concentration profiles of neutron-induced radioactivities in $UO_2$ fuel specimens, F.E. Osaisai, S.G. Prussin and D.R. Olander 173 (1990) 149
Diffusion of implanted sodium in iron and AISI 316 Ti stainless steel, A. Kehrel, K.P. Lieb, N. Scapellato and M. Uhrmacher 173 (1990) 284

**Irradiation Effects** *(excl. Swelling and Voids)*
Radiation damage studies of ion-irradiated low-activation developmental martensitic steel alloys for fusion applications, D.J. Mazey, W. Hanks and D.K. Lurcook 173 (1990) 34
The mechanism of nucleation of vacancy loops with Burgers vectors ⟨100⟩ in bcc metals, V.G. Kapinos, Y.N. Osetskii and P.A. Platonov 173 (1990) 229
Dielectric loss of alumina between 95 and 330 K at ECRH frequencies (Letter to the Editors), R. Heidinger 173 (1990) 243
The effect of the exposure to different irradiation sources on the thermal conductivity of $Al_2O_3$, M. Rohde and B. Schulz 173 (1990) 289

**Liquid Metals**
Diffusion of implanted sodium in iron and AISI 316 Ti stainless steel, A. Kehrel, K.P. Lieb, N. Scapellato and M. Uhrmacher 173 (1990) 284

**Mechanical Properties** *("Various", i.e. not listed elsewhere by name)*
Anisotropy of the shear modulus in hcp-zirconium single crystals (Letter to the Editors), N. Christodoulou, A. Salinas-Rodriguez and S. Ves 173 (1990) 98

**Nickel and Nickel Alloys**
Etude, par spectroscopies optiques de reflexion dans l'ultraviolet, visible, proche infrarouge et infrarouge, par spectroscopie XPS de l'oxydation d'un alliage Ni–20Cr , M. Le Calvar and M. Lenglet 173 (1990) 71

**Niobium and Niobium Alloys**
Thermophysical property correlations for the niobium–1% zirconium alloy, D.J. Senor, J.K. Thomas and K.L. Peddicord 173 (1990) 261
Transport property correlations for the niobium–1% zirconium alloy, D.J. Senor, J.K. Thomas and K.L. Peddicord 173 (1990) 274

**Phase Transformation**
Multiple martensitic transformations in plutonium metal and a suggested similarity in electronic behavior of plutonium metal phases and d-electron transition element alloys, T.A. Sandenaw and J.F. Andrew 173 (1990) 59

**Physical Properties** *("Various", i.e. not listed elsewhere by name)*
Anisotropy of the shear modulus in hcp-zirconium single crystals (Letter to the Editors), N. Christodoulou, A. Salinas-Rodriguez and S. Ves 173 (1990) 98
Dielectric loss of alumina between 95 and 330 K at ECRH frequencies (Letter to the Editors), R. Heidinger 173 (1990) 243

**Plutonium, Plutonium Alloys and Compounds**
Multiple martensitic transformations in plutonium metal and a suggested similarity in electronic behavior of plutonium metal phases and d-electron transition element alloys, T.A. Sandenaw and J.F. Andrew 173 (1990) 59

**Powder Processes and Products**
A novel surface chemical treatment to improve the quality of sintered $UO_2$ pellets, B. Venkataramani and R.M. Iyer 173 (1990) 255

**Recrystallization, Recovery and Grain Growth**
Influence of final recrystallization heat treatment on Zircaloy-4 strip corrosion, J.P. Foster, J. Dougherty, M.G. Burke, J.F. Bates and S. Worcester 173 (1990) 164

**Refractory Metals and Alloys** *("Various", i.e. not listed elsewhere by name)*
Multiple martensitic transformations in plutonium metal and a suggested similarity in electronic behavior of plutonium metal phases and d-electron transition element alloys, T.A. Sandenaw and J.F. Andrew 173 (1990) 59

**Steels**
Tritium sorption and chemical and topographical properties of a stainless steel surface modified with chromium, T. Hirabayashi, S. Poosittisak, Y. Sun and M. Saeki 173 (1990) 26
Radiation damage studies of ion-irradiated low-activation developmental martensitic steel alloys for fusion applications, D.J. Mazey, W. Hanks and D.K. Lurcook 173 (1990) 34
Caustic stress corrosion cracking of stainless steel 316L in concentrated lithium hydroxide (Letter to the Editors), J.H. Zheng and W.F. Bogaerts 173 (1990) 101
Study of near surface defects in He-implanted stainless steels by monoenergetic positron beam, A. Uedono, S. Tanigawa and H. Sakairi 173 (1990) 307

**Structural Materials**
Precipitation and identification of carbides in a Zr–2.5 wt% Nb alloy, R. Piotrkowski, G. Vigna and R. Versaci 173 (1990) 78

**Surface Effects and Characterization Techniques**
Tritium sorption and chemical and topographical properties of a stainless steel surface modified with chromium, T. Hirabayashi, S. Poosittisak, Y. Sun and M. Saeki 173 (1990) 26
Radiation-enhanced sublimation experiments using the Sandia high-heat-flux test facility (Letter to the Editors), A.A. Haasz, J.W. Davis, C.D. Croessmann, B.L. Doyle, R.E. Nygren, D.S. Walsh, J.G. Watkins and J.B. Whitley 173 (1990) 108
Application of pyrolytic boron nitride in fusion devices, O.I. Buzhinskij, I.V. Opimach, A.V. Kabishev, V.V. Lopatin and Y.P. Surov 173 (1990) 179
A novel surface chemical treatment to improve the quality of sintered $UO_2$ pellets, B. Venkataramani and R.M. Iyer 173 (1990) 255
Diffusion of implanted sodium in iron and AISI 316 Ti stainless steel, A. Kehrel, K.P. Lieb, N. Scapellato and M. Uhrmacher 173 (1990) 284
Study of near surface defects in He-implanted stainless steels by monoenergetic positron beam, A. Uedono, S. Tanigawa and H. Sakairi 173 (1990) 307

**Swelling**
Swelling of tritiated lithium hydride over the first 150 days, J.A. Emig, S.R. Mayhugh, F. Garcia and P.C. Souers 173 (1990) 113
Swelling of tritiated lithium hydride powder, P.C. Souers, C.L. Folkers, T. McCreary, R.O. Lindahl, G.D. Snider, F. Vanderhoofven and R.T. Tsugawa 173 (1990) 159

**Thermal Reactors**
Migration of fission product barium in $UO_2$ fuel under transient conditions, C.T. Walker, C. Bagger and M. Mogensen 173 (1990) 14
Precipitation and identification of carbides in a Zr–2.5 wt% Nb alloy, R. Piotrkowski, G. Vigna and R. Versaci 173 (1990) 78

**Thermodynamic Properties**
Mass spectrometric vaporization study on palladium–zirconium alloys, S. Stølen, T. Matsui and K. Naito 173 (1990) 48
The thermal conductivity of $UO_2$ sphere-pac beds, R.O.A. Hall, D.G. Martin and M.J. Mortimer 173 (1990) 130

**Thermophysical Properties**
Thermal diffusivity of $UO_2$–$Gd_2O_3$ pellets, M. Hirai 173 (1990) 247
Thermophysical property correlations for the niobium–1% zirconium alloy, D.J. Senor, J.K. Thomas and K.L. Peddicord 173 (1990) 261
The effect of the exposure to different irradiation sources on the thermal conductivity of $Al_2O_3$, M. Rohde and B. Schulz 173 (1990) 289

**Tritium**
Swelling of tritiated lithium hydride over the first 150 days, J.A. Emig, S.R. Mayhugh, F. Garcia and P.C. Souers 173 (1990) 113
Tritium sorption and chemical and topographical properties of a stainless steel surface modified with chromium, T. Hirabayashi, S. Poosittisak, Y. Sun and M. Saeki 173 (1990) 26
Swelling of tritiated lithium hydride powder, P.C. Souers, C.L. Folkers, T. McCreary, R.O. Lindahl, G.D. Snider, F. Vanderhoofven and R.T. Tsugawa 173 (1990) 159
MISTRAL: A comprehensive model for tritium transport in lithium-base ceramics. Part I: Theory and description of model capabilities , G. Federici, A.R. Raffray and M.A. Abdou 173 (1990) 185

MISTRAL: A comprehensive model for tritium transport in lithium-base ceramics. Part II: Comparison of model predictions with experimental results, G. Federici, A.R. Raffray and M.A. Abdou 173 (1990) 214

**Uranium and Uranium Alloys**
Heat-induced redistribution of surface oxide in uranium, E. Swissa, N. Shamir, M.H. Mintz and J. Bloch 173 (1990) 87

**Uranium Ceramics**
Migration of fission product barium in $UO_2$ fuel under transient conditions, C.T. Walker, C. Bagger and M. Mogensen 173 (1990) 14
Heat-induced redistribution of surface oxide in uranium, E. Swissa, N. Shamir, M.H. Mintz and J. Bloch 173 (1990) 87
The thermal conductivity of $UO_2$ sphere-pac beds, R.O.A. Hall, D.G. Martin and M.J. Mortimer 173 (1990) 130
Concentration profiles of neutron-induced radioactivities in $UO_2$ fuel specimens, F.E. Osaisai, S.G. Prussin and D.R. Olander 173 (1990) 149
Thermal diffusivity of $UO_2$–$Gd_2O_3$ pellets, M. Hirai 173 (1990) 247
A novel surface chemical treatment to improve the quality of sintered $UO_2$ pellets, B. Venkataramani and R.M. Iyer 173 (1990) 255

**Vaporization**
Mass spectrometric vaporization study on palladium–zirconium alloys, S. Stølen, T. Matsui and K. Naito 173 (1990) 48

**Wastes** *(radioactive)*
Release of volatile carbon-14 containing products from Zircaloy, D. Kopp and H. Münzel 173 (1990) 1

**Zirconium, Zirconium Alloys and Compounds**
Release of volatile carbon-14 containing products from Zircaloy, D. Kopp and H. Münzel 173 (1990) 1
A fractographic study of stress corrosion cracking of Zircaloy-4 in a methanol/HCl solution, M.-H. Hong, S.-I. Pyun, S.-U. Chung and J.-S. Kim 173 (1990) 7
Mass spectrometric vaporization study on palladium–zirconium alloys, S. Stølen, T. Matsui and K. Naito 173 (1990) 48
Precipitation and identification of carbides in a Zr–2.5 wt% Nb alloy, R. Piotrkowski, G. Vigna and R. Versaci 173 (1990) 78
Anisotropy of the shear modulus in hcp-zirconium single crystals (Letter to the Editors), N. Christodoulou, A. Salinas-Rodriguez and S. Ves 173 (1990) 98
Study by electron diffraction of precipitation in low iron content Zr–Fe alloys (Letter to the Editors), R. Borrelly and P. Merle 173 (1990) 105
Grain boundary diffusion in α-zirconium. Part I: Self-diffusion, K. Vieregge and C. Herzig 173 (1990) 118
Influence of final recrystallization heat treatment on Zircaloy-4 strip corrosion, J.P. Foster, J. Dougherty, M.G. Burke, J.F. Bates and S. Worcester 173 (1990) 164
Thermophysical property correlations for the niobium–1% zirconium alloy, D.J. Senor, J.K. Thomas and K.L. Peddicord 173 (1990) 261
Transport property correlations for the niobium–1% zirconium alloy, D.J. Senor, J.K. Thomas and K.L. Peddicord 173 (1990) 274
Initiation of delayed hydride cracking in zirconium–2.5 wt% niobium, A.F. Shalabi and D.A. Meneley 173 (1990) 313